

Federation of Earth Science Information Partners Partnership Application

Please complete all sections to the fullest extent possible and forward completed application to: Carol Meyer, carol.meyer@earthsciencefoundation.org. If you have any questions, please contact her at 877.870.3747.

I. CONTACT INFORMATION

A. Primary Contact/Principal Investigator

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B. Designated Assembly Representative (could be same as above)

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C. Other Contacts

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II. ABOUT YOUR ORGANIZATION

A. ORGANIZATION/DIVISION/PROJECT NAME:

Center for Research on Environment and Water (CREW)

B. OVERVIEW OF YOUR PRIMARY ACTIVITIES (250 words or less)

CREW's mission is to quantify and predict water cycle and environmental consequences of earth system variability and change through focused research investments in observation, modeling, and application

CREW aims to quantify and predict the energy sources and sinks that feed baroclinic weather systems, the general circulation of the atmosphere, global water transport, rainfall, and the renewal of fresh water resources.

The Center: CREW integrates research across traditional disciplines in an end-to-end program that transitions theoretical research to academic/public education and real-world application, through partnerships with universities, government, and international agencies. The center goal of improved and applicable predictions of the water and energy cycles will require decisive progression from observations to improved understanding and modeling, and eventually to better prediction and application. The center can not possibly hope to achieve this objective alone, but rather conducts focused activities aimed at improving existing partner capabilities. To focus CREW on making decisive progress toward quantifying and predicting water cycle and environmental consequences of earth system variability and change, we adopt the following three central CREW elements:

- **Observation:** Quantify long-term water cycle trends & variability; enable progression toward a coordinated water cycle observation system; extract knowledge and understanding from diverse observations to enhance prediction capability.
- **Modeling & Prediction:** Use multiple state-of-the-art, operational, earth-system models; conduct sensitivity and predictability experiments; infuse process-scale understanding to predict water cycle extremes. Enhance prediction through observational constraints; explore limits of water cycle predictability.
- **Solutions:** Enhance operational decision support tools with improved prediction; Engage in public and research community education; application; link to other earth system components.

C. Please list and briefly describe the primary product(s) or service(s) that your organization provides (will provide) to the community.

D. Please give a main website address for the proposed Partnership:

Web Address: <http://crew.iges.org/>

III. HOW YOUR ORGANIZATION WILL BENEFIT FROM/CONTRIBUTE TO THE EARTH SCIENCE INFORMATION PARTNERS (ESIP) FEDERATION

- A. Describe current or anticipated users of your products and services and how you think the Federation can help you better serve this population. (200 words or less)

The need for understanding water cycle variability and its relationships with water availability and water-related natural hazards are well documented, and have provided a justification for wide ranging efforts to promote adequate observations (and historic reconstructions) to quantify the variability of water and energy cycle components. As outlined in the National Water Assessment Group report to the USGCRP (September 2000), opportunities exist and should be exploited for applying knowledge of the water cycle to the vast array of water sensitive social and economic sectors and related policy decisions and actions. Key water cycle issues of value to water management include the analysis and prediction of extreme events - floods and droughts; water supply and use, snowpack evolution and runoff, consumptive use by vegetation, evapotranspiration, surface-groundwater exchanges, stream flow, flood waves, debris flows and land slides.

Hydrologic processes directly impact the management of major river systems, storage facilities, generation of hydropower, protection of life and property through flood control, and provision of water for municipal and industrial use, agricultural irrigation supplies, and protection of the riparian, instream and coastal ecosystems. The water user community has a vast array of DSTs that it uses for water resource management decisions, which range from daily and hourly decisions to monthly, seasonal, and annual planning. The Federation will be a key asset in helping to identify data and tools that can address the needs of this important user community.

- B. Describe any Earth science technologies that you have developed and are willing to bring to the Federation's efforts to provide best-practices. (200 words or less)

Our work focuses on identifying and developing pathways for solution development using recent earth science research results. We employ strategies to connect these two end-points that include innovative communication strategies (web forums, interactive workshops, and information portals) improved user access to NASA resources (metadata development & access, reformatting tools, etc.), improved water cycle research community appreciation for DST and model requirements (direct feedback to research projects on their application relevance, formal documentation, etc.), improved policymaker, management and stakeholder knowledge of NASA research and application products, and socio-economic solution pathway modeling studies.

- C. Describe how your proposed membership would contribute to the efforts and the mission of one or more

standing committees, working groups and/or clusters. See Page 3 for descriptions of the different activities of the various standing committees, working groups, and clusters. (200 words or less)

This work will directly address, if not lead, the ESIP water management cluster.

- D. Describe your own use of Earth science information and data and how you would see this use enhanced by your partnership in the Federation. (200 words or less)

ESIP membership will enable us to routinely identify water-cycle application-relevant data resources and research results (water cycle missions and sensors, research, technology, observational data and model products, geophysical parameters, metadata, and contacts), and to prioritize and communicate these results to our stakeholder partners. Central to this work is ESIP's virtual interfaces that enable the DST to transparently access appropriate metadata for ingestion.

IV. YOUR CHOICE OF MEMBERSHIP TYPE. PLEASE PICK ONE.

ESIP-I (primarily a data archive center)



ESIP-II (primarily a research center)



ESIP-III (primarily applications and education)



ESIP-IV (primarily a sponsoring member)



V. Any other comments about your proposed membership and its relation to the Federation that you wish to provide.

P. Houser is a co-lead of the ESIP water management cluster.

Primary Product or Service:

- (1) State of the Water Cycle Assessments
- (2) A Water Cycle research result and stakeholder applications metadatabase and portal.

Thank you for your application for partnership in the ESIP Federation.

List of Federation Committees and Clusters

Administrative Committees

Executive Committee: Comprised of all standing and administrative committee chairs, ESIP Type Representatives, the President and Vice President of the Federation. Oversight body for most day-to-day activities of the Federation, acts on behalf of the Assembly between meetings.

Constitution and Bylaws: Provides counsel on matters related to the constitution and bylaws and other related issues (e.g. amendments to government documents)

Finance and Appropriations: Oversees financial resources of the Federation, including the annual budgeting process.

Partnership: Reviews and processes all applications for membership before making applications available for review by members of the Federation. Deals with other membership-related issues.

Standing Committees:

Commercial Development: Promotes a forum wherein commercial development of Earth science information can be fostered.

Community Engagement: Provides a forum for the Federation to promote partner products and to engage new users for data products and services.

Education: Provides a forum to make accessible to educators and learners at all levels in both formal and informal educational contexts the Earth science data, information, tools, and curricula available within the ESIP Federation.

Information Technology and Interoperability: Provides a forum for discussing information technology and interoperability issues of the Earth science community and serves as a central point for activities in this realm.

Products and Services: Provides a forum for defining best practices and defining requirements for earth science products and services. Currently is involved in developing an inventory of partner products and services.

Clusters (presently active, April 2005):

GIS

Intelligent Systems

Air Quality